

## CLAIMS

1. A foil comprising optically refractive pyramidal elements, each having a triangular base, such that the bases of adjacent elements are turned 180 degrees relative to each other, characterized in that the pyramidal elements have respective apex angles which have been selected in dependence on a desired optical refraction.

10 2. A foil according to claim 1, characterized in that the bases are divided into adjacent rows, with the bases of the elements of adjacent rows being turned through 180 degrees relative to each other.

15 3. A foil according to any one of the claims 1 of 2, characterized in that the elements have identical dimensions.

20 4. A foil according to any one of the claims 1-3, characterized in that the dimension of the sides of the base of the elements ranges from 1-200  $\mu\text{m}$ , preferably from 5- 40  $\mu\text{m}$ , more preferably it will be around 10  $\mu\text{m}$ .

25 5. A foil according to any one of the claims 1-4, characterized in that the triangular base is equilateral.

30 6. A foil according to any one of the claims 1-5, characterized in that the elements have a height which has been selected in dependence on a desired optical refractive pattern.

7. A foil according to any one of the claims 1-6, characterized in that the apex angle lies between  $30^\circ$ - $80^\circ$ .

35 8. A foil according to one of the claims 1-7, characterized in that the apex angle is around  $60^\circ$ .

9. A foil according to one of the claims 1-8, characterized in that the height of the pyramids lies around 7.5  $\mu\text{m}$ .

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10. A lighting system comprising the foil according to any one of the claims 1-9 and a light source irradiating the foil, characterized in that the distance between the foil and the light source is variable.

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11. A lighting system according to claim 9, characterized in that the bases of the pyramidal elements may towards the light source or away from the light source.

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12. A lighting system according to claim 10 of 11, characterized in that the respective heights of the said elements have been selected in dependence on a desired light distribution.

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13. A lighting system according to any one of the claims 10-12, characterized in that the respective apex angles of said elements have been selected in dependence on a desired light distribution.

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14. Use of the foil according to any one of the claims 1-9, characterized in that the optically refractive foil is used for imparting a desired refraction pattern to electromagnetic waves, such as light, for example visible light, and/or heat waves, such as infrared light or ultraviolet waves.

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15. Use of the foil according to claim 14, characterized in that the foil is used for being affixed to display screen, LCD screen or the like.

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16. Use of the foil according to claim 14 or 15,

characterized in that the foil is used for being affixed to solar panels, and/or solar cells.

17. A display screen provided with a foil according  
5 to one of the claims 1-9.

18. Solar system provided with a foil according to  
one of the claims 1-9.